

where the storm struck the ground. On account of darkness, no funnel-shaped cloud was observed, tho a loud, roaring noise was heard as the storm past. At Fort Deposit 2 persons were killed, 22 were injured, 50 buildings valued at \$50,000 were destroyed, and other damage done to the extent of \$30,000. At Shiloh Church, a small settlement 7 miles northeast of Montgomery, 2 frame buildings were partially destroyed, and other damage done, aggregating about \$3,000.

A tornado occurred at Tarentum, a small settlement in the southeastern part of Pike County, Ala., at 1:30 a. m., April 30, 1908. The track of this tornado extended about 3 miles in a northeasterly direction and was about 400 yards wide. No funnel-shaped cloud was observed tho the storm was accompanied by a rumbling noise which was immediately followed by a heavy downpour of rain and hail. No one was killed, but 10 people were injured, 25 frame buildings valued at \$25,000 were destroyed, and other damage done to the extent of \$10,000. The hail was quite heavy and caused considerable additional damage to crops.

TORNADO AT DORA AND BERGENS, ALA., APRIL 24, 1908.

By W. F. LEHMAN, Observer. Dated Birmingham, Ala., May 28, 1908.

The first of the tornadoes that occurred in northern Alabama on April 24, 1908, developed in southeastern Walker County during the early afternoon, and at about 2:40 p. m., central time, destroyed the settlement of Bergens on the Northern Alabama Railroad, 22 miles northwest of Birmingham. In its early stage the storm crost a sparsely settled district, advancing in a northeasterly direction and causing havoc over a track three-quarters of a mile wide. It was not until the storm was joined, about a mile southwest of Bergens, by another black mass of clouds, smaller in extent and moving in a more easterly direction, that it developed its greatest violence. Continuing on a northeast course the tornado ravaged a territory nearly a mile wide, but encountered few dwellings until it struck the hill ranges of Dora. Here the path of destruction narrowed down to about 3,000 feet.

Dora is a town of about 2,000 inhabitants and rather extended limits, partly situated in the valleys formed by three hill ranges running southeast-northwest. The business portion of the town is built alongside the railroad track between the central and northern hills, both about 150 feet high, while the southern valley is occupied by farmers and miners. Southeast of the hills, within earshot of the sheltered Dora habitations lies Bergens.

The claim of the Dora people that the hills saved their town from destruction induced the writer to spend a day and a half in exploring the storm track around Dora. The result is embodied in the accompanying diagram.

Fig. 1 shows that had the path of destruction remained as wide as it was to the southwest it would have embraced the whole eastern half of Dora, and also that it again widened out to its earlier width when the storm past beyond the northernmost of the Dora hills. As it was, however, the central path past over Bergens, while on the west side the path of destruction narrowed to one-half its original width so that only on the Dora hilltops were trees uprooted. The eastern side of the path of destruction continued uninterrupted a half mile wide.

On the forenoon of the 24th the weather had been cloudy and squally. A slight shower occurred shortly after noon. The uniform, light gray appearance of the sky an hour before the storm, set people to wondering what would happen next. Some predicted rain, but there was no sign of rain. The unusual weather conditions were the topic of conversation everywhere. Some one suggested a coming tornado, tho he had never experienced one, and for want of a better explanation

of the prevailing conditions this idea was generally adopted. But the people were woefully ignorant as to the character of a tornado and the direction from which to expect it. Had they known, probably no lives would have been lost. From unobstructed viewpoints the meeting of the two clouds had been observed half a minute before the storm arrived, but most of the people of Bergens can only recollect seeing the cloud coming, rushing to their houses for shelter (there were no tornado cellars), and having their houses blown down; all this happening within the space of fifteen seconds.

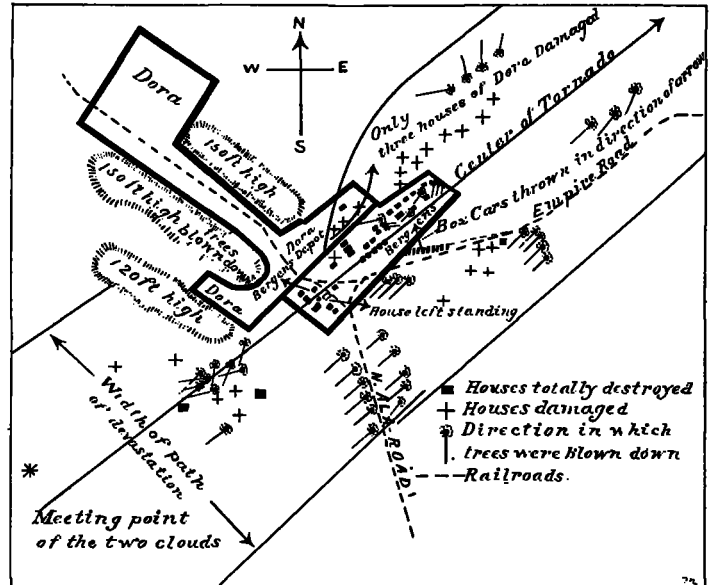


FIG. 1.—Path of storm thru Dora and Bergens, Ala.

The cloud is generally described as a dense coal-black mass with a whitish top, reaching to the ground. To some its central mass, between the top and the ground, seemed to revolve around a horizontal axis. Some observers noticed the cloud had a distinct funnel shape as it retreated into the distance. The tornado was attended by lightning and hail, some hailstones measuring three-quarters of an inch in diameter. The rain was light until some minutes after the cloud had past, when a heavy shower of short duration occurred. The roar caused by the storm was so deafening that no mere sound of crashing buildings could be heard.

Of the first group of ten houses, situated within 500 feet of the depot, eight were totally destroyed, including the depot, while one building almost in the center of the group escaped without any damage, and a substantially built two-room house was thrown bodily on the railroad track 75 feet away from its foundation. Farther on all the dwellings, the store, and the church of Bergens were razed to the ground. Of ten empty box cars standing on a side track of the Empire Road three were overturned and the other seven were blown toward the center of the storm track, some heavy parts being carried 100 feet away to a low hill. In the southeastern portion of the path all the tall trees were either blown down or snapped off at from 10 to 20 feet above the ground, and every house sustained heavy damage. At Bergens six persons were killed outright and two died of their injuries on the same day; the other injured number sixteen. Twenty-seven houses were totally destroyed and fifteen more or less damaged. The property destroyed was valued at about \$50,000.

From Bergens the tornado progressed toward the northeast, with a path three-quarters of a mile wide. The few dwellings in its way were badly damaged, and at Old Democrat, a village 4 miles northeast of Dora, several houses were blown down and two persons were killed.

OBSERVATIONS OF A TORNADO NEAR FORT WORTH, TEX.

By D. S. LANDIS, Observer. Dated Fort Worth, Tex., June 3, 1908.

At 3:05 p. m. on May 29, 1908, a whitish, smoky-looking bank of clouds loomed up rapidly in the southwest, and within a few minutes similar banks of alto-cumulus clouds appeared in the west, then in the northwest. The fore front of each bank was flanked with whitish, curling, ragged-edged cloud substance, in appearance like billowy wood smoke from a distant forest fire. Within a period of five minutes cumulus clouds lying in the east and northeast began to move as tho sucked toward one common point on the Sansom ranch due north of the station, and about 4 miles distant. At this point a greenish-black cloud-core seemed to develop in the upper air, then bag downward, oscillate up and down in a careless rocking manner, drawing nearer and nearer to the earth, but failing to reach it by about 200 yards. This was the funnel of the tornado, the point of the funnel being ragged and misty looking, whirling and trailing inwardly upon itself. Presently the funnel bellied a little and at once became constricted to about half its original size immediately above the bellied portion. Next the whole cloud mass shot directly eastward for a distance of half a mile, stopt still, whirled rapidly for a few moments and then the funnel separated entirely at the stricture. The two portions of the funnel and the accompanying cloud mass now slowly backed, whirling gently, and again stopt, the tip now descending to the earth at the point where the funnel had formed. The upper portion then descended and the two parts of the funnel were reunited, the in-whirling motion becoming very energetic. Almost instantly after the union of the funnel portions the storm took on new electrical activity. Zigzag lightnings played in and out about the funnel, which at times seemed like a great black transparent blood-vessel with the lightning a crimson fluid unleashed from the black walls to partially fall away, only to be grappled again by the darkness and hidden.

A thunderstorm prevailed during the passage of this peculiar cloud, and so continuous was the roar of thunder that one was at a loss to distinguish whether there were other sounds than its rolling.

At 3:08 p. m. the tornado center took on immense energy, and darted furiously toward the northeast, the funnel appearing very rigid and tapering down to a point within 200 yards of the earth. The funnel was ebony black, save when lit up by vivid sheet lightning on its east side. At one instant a spiral of lightning seemed to make two circuits of the funnel in its passage from the upper heights to the earth, the quiver of light leaping from the tip of the funnel to the earth. Within a space of two minutes more the dark funnel retired into the mother cloud overhead, and was lost from sight. Commotion in the clouds decreased rapidly, and they soon fell apart and so dissolved that only a few domes of cumulus clouds could be seen lying in the northeast, while the west and northwest sky was calm and cloudless. The whole affair seemed like a tornado on parade, sweeping the upper heights with threatening storm-tentacles of wind and mist and lightning, coming close down to earth as with death-dealing intent, only to repent and hide away from human eyes.

Among the weather features particularly noted were a very high relative humidity just before and after the storm, and a light wind from the south before the funnel formed. The wind direction changed very noticeably to various points as the storm past. At 3 p. m. the wind was prevailing from the south, and instantly it switched to the west, then to the northwest, north, and northeast in the course of the storm movement. The temperature during the whole storm period was 84°, but it fell quite decidedly for several hours after the passing of the clouds. Light rain prevailed at the station during the storm, also in the immediate vicinity of the tornado

funnel, but no hail was reported. No marked wind movement was noted at the station with the passing of the storm, but those who were in the immediate vicinity of the funnel report a high wind from the east, with brisk wind movement from all points of the compass as the storm was passing. No damage to person or property was reported, the funnel coming to the earth for an instant only, and then in a wide pasture, treeless, fenceless, and houseless. The movement of the cloud for the few seconds that the funnel touched the earth was toward the northeast, herbage only showing the disturbance, grasses and weeds being inclined on the east quarter of the funnel as tho the wind were whirling from left to right. The herbage inclination on the north, northwest, and west showed the same right to left whirling motion of the wind. At the center of the path the grasses showed a pulled-together-at-the-top-influence, as tho suction had been inward and upward. The storm track visible on the ground was about 30 yards wide at the widest, and about 20 feet wide at the narrowest point. The earlier movement, directly eastward and then back to the starting point, was about half a mile each way, and the final northeastward movement of the cloud was about 4 miles to the point of dissolution. No glow was noted in the funnel or about it, nor any peculiar light, except the lightning, which varied from blood red to a blue flame like that of sulfur. No peculiar cloud form was noted, except that the clouds in the southwest and east elongated and dipt downward at the fore front, becoming torn and scud-like, whitish, and misty, seemingly rushing down an incline to a steep valley. With the union of all the clouds from the various points they changed color from the wood-smoke hue to a black cloud-core from which point the funnel lowered and the electrical display seemed to issue.

TORNADOES IN MINNESOTA ON MAY 24, 1908.

(Abstract from Climatological Report of the Minnesota Section.)

On the afternoon of May 24, 1908, two tornadoes visited southern Minnesota following on the warm, sultry weather of the preceding day. The first tornado appeared at 4:15 p. m., 3 miles southeast of Imogene, Martin County. It moved northwestward for about 2 miles along a path 40 rods in width, destroying \$4,000 worth of property and injuring 4 persons.

The second storm formed at 4:30 p. m. in Blue Earth County, 25 miles northeast of Imogene, and traveled slightly east of north until it crost Lake Ballantyne when it disappeared about 4:50 p. m. The path of this tornado was 20 to 40 yards wide. One person was injured and property to the value of \$5,000 destroyed. Detailed accounts of both tornadoes and a map showing the path of the second may be found on page 36 of the Climatological Report of the Minnesota Section for May, 1908, prepared by U. G. Purssell, Section Director.—EDITOR.

SEVERE LOCAL STORM IN FLORIDA.

Mr. C. L. Hobbs, cooperative observer of the Weather Bureau at Blountstown, Calhoun County, Fla., reports that a severe local storm occurred in the vicinity of his station about 1 o'clock in the afternoon of May 30, 1908. There was a well-defined pendant funnel-shaped cloud, with rotary winds of sufficient violence to uproot trees and prostrate buildings. The storm came from the northwest and moved toward the southeast.

Part of Mr. Hobbs's interesting description is given:

We had just finished dinner and heard a roaring noise and upon looking in a northwest direction we saw the tops of the trees swaying and bending in a terrible commotion. The greatest strength of the storm seemed to be some distance above the earth; however, the funnel dipt down right in the town, wrecked a new building 80 by 30 feet, then shot up to the tree tops and disappeared entirely. There were no trees prostrated in any general path; as before stated, the greatest violence